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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,122	07/14/2003	Herman Lee	112056-0085	6869

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EXAMINER

JEAN GILLES, JUDE

ART UNIT PAPER NUMBER

2143

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/619,122

Applicant(s)

LEE ET AL.

Examiner

Jude J. Jean-Gilles

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-22 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 14 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :09/22/2003, 09/29/2003, and 07/12/2004 .

DETAILED ACTION

This office action is responsive to communication filed on 07/14/2003.

Information Disclosure Statement

1. The references listed on the Information Disclosure Statement submitted on 09/22/2003, 09/29/2003, and 07/12/2004 have been considered by the examiner (see attached PTO-1449A).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1, 6-8, 12, 13, and 17-22** are rejected under 35 U.S.C. 102(e) as being anticipated by Nolan et al (Nolan), Patent No. 6,446,141 B1.

Regarding **claim 1**, Nolan discloses a method for generating a lun map associated with an initiator for use with a storage system in a network environment (fig. 1B), the method comprising the steps of:

logging into the storage system by the initiator (column 19, lines 52-61);

identifying a set of luns that the initiator may access (column 6, lines 21-28);

creating a lun map associated with the initiator (column 8, lines 55-60; see also table 1 in column 8; column 21, lines 28-36; column 3, lines 1-8); and
returning a set of accessible luns to the initiator (column 20, lines 11-23).

Regarding **claim 6**, Nolan discloses the method of claim 1 wherein the network environment comprises a Fibre Channel switching network (column 4, lines 33-54).

Regarding **claim 7**, Nolan discloses the method of claim 1 wherein the storage system comprises a multi-protocol storage appliance (column 4, lines 33-54).

Regarding **claim 8**, Nolan discloses the method of claim 1 wherein the step of identifying the set of luns comprises the step of accessing a set of lun data structures associated with the storage system initiator (column 8, lines 55-60; column 21, lines 28-36; column 3, lines 1-8);

Regarding **claim 12**, Nolan discloses a method for performing a lun masking operation associated with an initiator for use with a storage system in a network environment (fig. 1B), the method comprising the steps of:

sending, by the initiator, a command directed to a lun associated with a storage system (see Nolan; column 20, lines 3-23);

accessing, by the storage system, a lun map associated with the initiator (column 8, lines 55-60; see also table 1 in column 8; column 21, lines 28-36; column 3, lines 1-8);

mapping the lun value sent by the initiator to a lun value associated with the storage system using the accessed lun map (column 8, lines 55-60; see also table 1 in column 8; column 21, lines 28-36; column 3, lines 1-8);

returning, in response to a failure of the mapping operation, an error message (see Nolan; column 3, lines 9-14; note that handling the device failure inherently teaches the sending of an error message); and

performing, in response to a success of the mapping operation, the requested command on the specified lun (see Nolan; column 20, lines 3-23).

Regarding **claim 13**, Nolan discloses the method of claim 12 wherein the lun map is contained within an initiator data structure associated with the storage system (column 8, lines 55-60; column 21, lines 28-36).

Regarding **claim 17**, Nolan discloses a method for performing a lun masking operation associated with an initiator for use with a storage system in a network environment (fig. 1B), the method comprising the steps of:

sending, by an initiator, a command directed to a lun associated with a storage system (see Nolan; column 20, lines 3-23);

accessing, by the storage system, a lun map associated with the initiator, the lun map being contained within an initiator data structure associated with the storage system and wherein the lun map further comprises a set of ordered pairs mapping a

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virtual lun to a physical lun (column 8, lines 55-60; see also table 1 in column 8; column 21, lines 28-36; column 3, lines 1-8);

mapping the lun value sent by the initiator to a lun value sent by the initiator to a lun value associated with the storage system using the accessed lun map, whereby the lun value sent by the initiator comprises a virtual lun and the lun value associated with the storage system comprises a physical lun (column 8, lines 55-60; see also table 1 in column 8; column 21, lines 28-36; column 3, lines 1-8);

returning, in response for a failure of the mapping operation common error message (see Nolan; column 3, lines 9-14; note that handling the device failure inherently teaches the sending of an error message); and

performing, in response to the success of the mapping operation, the requested command on the specified lun value associated with the storage system (column 8, lines 55-60; column 21, lines 28-36).

Regarding **claim 18**, Nolan discloses a storage system for use in a networking environment, the storage system comprising:

one or more luns that may be selectively exported to one or more clients of the storage system (column 7, lines 1-22; note that the clients here are client servers);

one or more initiator data structures, each of the one or more data structures associated with each of the one or more clients of the storage system, each of the initiator data structures including a lun map (column 8, lines 55-60; see also table 1 in column 8; column 21, lines 28-36; column 3, lines 1-8); and

a small computer system interface target module adapted to, upon receipt of a command directed to one of the one or more luns from one of the one or more clients, access the lun map to determine if the client may access the specified lun (figs. 1B, 2 and 3; column 20, lines 3-23).

Regarding **claim 19**, Nolan discloses the storage system of claim 18 wherein the one or more luns comprise virtual disks (column 20, lines 3-45).

Regarding **claim 20**, Nolan discloses the storage system of claim 18 wherein each of the initiator data structures are generated by the small computer system interface target module upon login by an associated initiator (column 19, lines 52-61).

Regarding **claim 21**, Nolan discloses a computer readable medium, executing on a storage system, for generating a lun map associated with an initiator (fig. 1B, the computer readable medium including program instructions for performing the steps of:

identifying a set of luns that the initiator may access by accessing a set of lun data structures associated with the storage system (column 6, lines 21-28);

creating a lun map associated with the initiator (column 8, lines 55-60; see also table 1 in column 8; column 21, lines 28-36; column 3, lines 1-8); and

returning a set of accessible luns to the initiator (column 20, lines 11-23).

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Regarding **claim 22**, Nolan discloses A storage system for use in a network environment, the storage system comprising:

means for selectively exporting one or more luns to one or more clients of the storage system(figs. 1B, 2 and 3; column 20, lines 3-23);

one or more initiator data structures, each of the one or more data structures associated with each of the one or more clients of the storage system, each of the initiator data structures including a lun map (column 8, lines 55-60; see also table 1 in column 8; column 21, lines 28-36; column 3, lines 1-8);and

means for determining if a client may access a specified lun (figs. 1B, 2 and 3; column 20, lines 3-23).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 2-5, 9-11, 14-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan in view of Bates et al (Bates) U.S. Patent No. 6,977,927 B1.

Regarding claim 2: Nolan discloses the invention substantially as claimed.

Nolan teaches the method for generating a lun map associated with an initiator for use with a storage system in a network environment, but fails to disclose the details of a method "wherein the lun map further comprises a set of ordered pairs mapping virtual luns to a physical luns".

In the same field of endeavor, Bates discloses "*a LUN map may be a two-dimensional matrix. In a preferred embodiment, a LUN map stores a two-dimensional array of physical LUN data. A first axis of the LUN map is indexed by target LUN information, and a second axis of the LUN map is indexed by target HBA information...*" [see Bates; column 10, lines 32-37].

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated Bates' teachings of using "the lun map further comprises a set of ordered pairs mapping virtual luns to a physical luns" with the teachings of Nolan, for the purpose of improving the ability of a network "...to provide a method and computer program product for allocating storage from a

variety of storage device types, manufactures, and interfaces in a storage aea network ... while maintaining storage security” as stated by Bates in lines 18-25 of column 2.

By this rationale, **claim 2** is rejected.

Regarding claim 3: the combination Nolan-Bates discloses the method of claim 2 wherein a virtual lun is a lun number exported to the initiator; and
wherein the physical lun is a lun number associated with the storage system
(column 8, lines 55-60; column 21, lines 28-36).

Regarding claim 4: the combination Nolan-Bates discloses the method of claim 1 wherein the step of identifying a set of luns that the initiator may access further comprises the steps of:

(a) selecting a lun data structure (see Nolan; column 8, lines 26-60; note that the table is the data structure of choice here);

(b) searching through a list of initiator identifiers in the lun data structure to identify whether the initiator may access the selected lun (see Gates; column 11, lines 17-34); and

repeating steps (a) and (b) for each lun data object associated with a given storage system (see Nolan; column 8, lines 26-60; see Gates; column 11, lines 17-34).

Regarding claim 5: the combination Nolan-Bates discloses the method of claim 4 wherein the initiator identifier comprises a world wide name (see Nolan; column 3, lines 1-8; note that the SCSI-3 identification Number is the world wide name in this context).

Regarding claim 9: the combination Nolan-Bates discloses a method for generating a lun map associated with an initiator for use with a storage system in a network environment, the method comprising the steps of:

(a) logging into the storage system by the initiator (see Nolan; column 19, lines 52-61);

(b) selecting a lun data structure(see Nolan; column 8, lines 26-60; note that the table is the data structure of choice here);

(c) searching for a list of identifiers in the lun data structure to identify whether the initiator may access the selected lun (see Gates; column 11, lines 17-34);

(d) repeating steps (b) and (c) for each lun data structure associated with the storage system (see Nolan; column 8, lines 26-60; see Gates; column 11, lines 17-34).;

(e) creating a lun map using the identified luns to be associated with the initiator, the lun map comprising a set of ordered pairs mapping virtual luns to physical luns (column 8, lines 55-60; see also table 1 in column 8; column 21, lines 28-36; column 3, lines 1-8); and

(f) returning a set of accessible luns to the initiator (column 20, lines 11-23).

Regarding claim 10: the combination Nolan-Bates discloses the method of claim 9 when a virtual lun is a lun number exported to the initiator; and

wherein a physical lun is a lun number associated with the storage system see (Bates; column 10, lines 32-37).

Regarding claim 11: the combination Nolan-Bates discloses the method of claim 10 wherein the set of accessible luns comprises a set of virtual luns to be exported to the initiator (Bates; column 10, lines 32-37).

Regarding claim 14: the combination Nolan-Bates discloses the method of claim 12 wherein the lun map further comprises a set of ordered pairs mapping a virtual lun to a physical lun [see Bates; column 10, lines 32-37].

Regarding claim 15: the combination Nolan-Bates discloses the method of claim 14 wherein a virtual lun is a lun number exported to the initiator; and

where a physical lun is a lun number associated with the storage system (see Nolan; column 8, lines 55-60; see also table 1 in column 8; column 21, lines 28-36; column 3, lines 1-8).

Regarding claim 16: the combination Nolan-Bates discloses the method of claim 12 wherein the step of mapping the lun value sent by the initiator to a lun value associated with the storage system using the lun map further comprises the steps of:

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identifying an entry of the lun map associated with the lun value sent by the initiator (column 8, lines 55-60; column 21, lines 28-36);

selecting an associated entry associated with the identified entry, the associated entry storing the lun value associated with the storage system (column 8, lines 55-60; see also table 1 in column 8; column 3, lines 1-8).

Conclusion

6. **THIS ACTION IS MADE NON-FINAL.** The Examiner strongly anticipates a Final Rejection Office Action on the next response if amendments are not properly made to the claims to perhaps place them in condition for allowance.

Any inquiry concerning this communication or earlier communications from examiner should be directed to Jude Jean-Gilles whose telephone number is (571) 272-3914.

The examiner can normally be reached on Monday-Thursday and every other Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley, can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3719.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

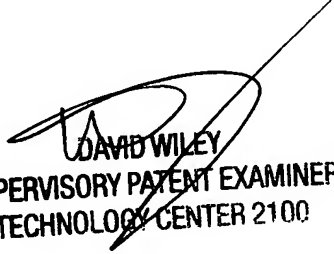
Jude Jean-Gilles

Patent Examiner

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JJG

December 27, 2006


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SUPERVISORY PATENT EXAMINER
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